IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

- 1. (Canceled)
- 2. (Canceled)
- 3. (Canceled)
- 4. (Currently Amended) A <u>signal processing system as recited in Claim 22 method of processing</u> a <u>signal as recited in Claim 1</u>, wherein the effective sampling function is a complex sampling function.
- 5. (Canceled)
- 6. (Canceled)
- 7. (Canceled)
- 8. (Currently Amended) A signal processing system as recited in Claim 22 method of processing a signal as recited in Claim 1, wherein the plurality of samples comprises a plurality of digital samples at a non-zero carrier frequency.
- 9. (Currently Amended) A signal processing system as recited in Claim 22 method of processing a signal as recited in Claim 1, wherein the plurality of complex samples comprises a plurality of complex samples of the signal at baseband.
- 10. (Currently Amended) A <u>signal processing system as recited in Claim 22 method of processing a signal as recited in Claim 1</u>, wherein the signal is a modulated signal.
- 11. (Currently Amended) A <u>signal processing system as recited in Claim 22 method of processing a signal as recited in Claim 1</u>, wherein the signal is a modulated signal and the

plurality of complex samples comprise a directly downconverted complex image of the modulated signal.

- 12. (Canceled)
- 13. (Canceled)
- 14. (Canceled)
- 15. (Canceled)
- 16. (Currently Amended) A <u>signal processing system as recited in Claim 22 method of processing a signal as recited in Claim 1</u>, wherein each of the plurality of samples results in either an I component of one of the plurality of complex samples or a Q component of one of the plurality of complex samples.
- 17. (Currently Amended) A signal processing system as recited in Claim 22 method of processing a signal as recited in Claim 1, wherein each of the plurality of samples results in both an I component of one of the plurality of complex samples and a Q component of one of the plurality of complex samples.
- 18. (Currently Amended) A <u>signal processing system as recited in Claim 22 A method of processing a signal as recited in claim 1</u>-wherein selecting the beat frequency of the effective sampling function comprises reversing the order of sorting to select a positive image or a negative image.
- 19. (Currently Amended) A signal processing system as recited in Claim 22 A method of processing a signal as recited in claim 1 wherein adjusting the algorithm comprises modifying a beat coefficient.
- 20. (Currently Amended) A <u>signal processing system</u> method of processing a signal as recited in Claim 19, wherein adjusting the algorithm comprises modifying a beat coefficient "n"

comprising an integer by which the rate of complex sampling events "T" is multiplied to yield the period of the beat frequency of the effective sampling function.

- 21. (Currently Amended) A <u>signal processing system</u> method of processing a signal as recited in Claim 19, wherein the plurality of complex samples includes a baseband signal having a bandwidth, and the effective sampling function includes a beat frequency greater than one half of the bandwidth.
- 22. (Previously Presented) A signal processing system, comprising:

an inverter configured to selectively negate a plurality of samples of a signal to provide negated and non-negated samples of the signal; and a first low pass filter configured to use a first set of selected ones of the negated and non-negated samples as in-phase (I) of a plurality of complex samples and a second low pass filter configured to use a second set of selected ones of the negated and non-negated samples as quadrature (Q) components of the plurality of complex samples;

wherein the plurality of complex samples correspond to the output of an effective sampling function;

and further comprising a processor configured to select a beat frequency of the effective sampling function by adjusting the algorithm, including by iteratively adjusting one or both of: a negation sequence in accordance with which samples comprising the plurality of samples of the signal are negated and a sorting sequence in accordance with which samples are sorted into I and Q components, until a beat frequency resulting in an output having a desired characteristic is achieved.

- 23. (Canceled)
- 24. (Canceled)
- 25. (Previously Presented) A signal processing system as recited in Claim 22, further comprising an analog to digital converter configured to generate the plurality of samples of the signal.

26. (Previously Presented) A signal processing system as recited in Claim 22, wherein one or

more of the inverter, the first low pass filter, and the second low pass filter comprise a field

programmable gate array (FPGA).

27. (Currently Amended) A signal processing system as recited in Claim 22, wherein wherein

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one or more of the inverter, the first low pass filter, and the second low pass filter, and the

processor comprises an integrated circuit.

28. (Canceled)

29. (Canceled)

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